CLAIMS

What is claimed is:

1. A filter configured to be used in connection with an intravascular device, the filter comprising a polyurethane film having a thickness of less than about 25μm, the polyurethane film being formed to have an enclosed distal end and an open proximal end.

2. The filter as recited in claim 1, wherein the filter has a sack-like shape.

3. The filter as recited in claim 1, wherein the filter has a substantially conical shape.

4. The filter as recited in claim 1, wherein the polyurethane film has a thickness of about 5μm to about 25μm.

5. The filter as recited in claim 1, wherein the polyurethane film has a thickness of about 5μm to about 15μm.

6. The filter as recited in claim 1, wherein the polyurethane film has a thickness of about 5μm to about 8μm.

7. The filter as recited in claim 1, wherein the polyurethane film comprises a first edge and a second edge that are bonded together.

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8. The filter as recited in claim 7, wherein the first edge and the second edge are bonded by a solvent process.

9. The filter as recited in claim 7, wherein the first edge and the second edge are bonded by an adhesive.

10. The filter as recited in claim 7, wherein the first edge and the second edge are bonded by a heating process.

11. The filter as recited in claim 1, wherein the polyurethane film comprises a first section and a second section, each of the first section and the second section having a tapered end, wherein at least a portion of the tapered end of the first section and the second section are bonded together.

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12. A method of constructing a filter for use in connection with an embolic protection device, the method comprising:

forming a first section of a filter material having a thickness of less than about 25μm, the first section having a first edge and a second edge;

contacting at least a portion of the first edge with at least a portion of the second edge;

bonding together the at least a portion of the first edge with at least a portion of the second edge, such that the first section is formed into a sack-like shape.

13. The method of constructing a filter as recited in claim 12, wherein forming a first section of the filter material comprises laser cutting a larger piece of the filter material according to a predetermined pattern to form the first section.

14. The method of constructing a filter as recited in claim 11, wherein forming a first section of the filter material comprises:

masking a larger piece of the filter material according to a predetermined pattern; and

removing an excess portion of the filter material outside of the predetermined pattern with at least one of a laser beam and a solvent.

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15. The method of constructing a filter as recited in claim 12, wherein contacting at least a portion of the first edge and the second edge further comprises clamping at least a portion of the first edge and the second edge together using a clamping assembly.

16. The method of constructing a filter as recited in claim 15, wherein the clamping assembly comprises a first clamping surface and a second clamping surface.

17. The method of constructing a filter as recited in claim 16, wherein at least one of the first clamping surface and the second clamping surface includes a chamfered edge on the outer periphery thereof.

18. The method of constructing a filter as recited in claim 15, wherein the clamping assembly comprises a first blade and a second blade.

19. The method of constructing a filter as recited in claim 18, wherein at least one of the first blade and the second blade includes a chamfered edge.

20. The method of constructing a filter as recited in claim 12, wherein bonding together the at least a portion of the first edge with at least a portion of the second edge comprises contacting at least a portion of the first edge and at least a portion of the second edge with a bonding agent so as to form a bond between the first edge and the second edge.

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21. The method of constructing a filter as recited in claim 12, wherein bonding together the at least a portion of the first edge with the at least a portion of the second edge comprises contacting at least a portion of the first edge and the second edge with sufficient heat so as to form a bond between the first edge and the second edge.

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22. A method of constructing a filter for use in connection with an embolic protection device, the method comprising:

forming a first section and a second section of a filter material, each section having a thickness of less than about 25μm, the first section and the second section each having a first edge and a second edge;

contacting at least a portion of the first edge of the first section and the first edge of the second section;

contacting at least a portion of the second edge of the first section and the second edge of the second section;

bonding together at least a portion of the first edges and the second edges, such that the first section and second section are formed into a sack-like shape.

23. The method of constructing a filter as recited in claim 22, wherein forming the first section and second section of filter material comprises laser cutting a larger piece of filter material according to a predetermined pattern.

24. The method of constructing a filter as recited in claim 22, wherein forming the first section and second section comprises masking a larger section of a filter material according to a predetermined pattern and removing the excess filter material outside of the predetermined pattern with a wide laser beam.

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25. The method of constructing a filter as recited in claim 22, wherein overlapping at least a portion of the first edge of the first section and the first edge of the second section further comprises clamping at least a portion of the first edge of the first section and the first edge of the second section together using a clamping assembly.

26. The method of constructing a filter as recited in claim 25, wherein the clamping assembly comprises a first clamping surface and a second clamping surface.

27. The method of constructing a filter as recited in claim 25, wherein at least one of the first clamping surface and the second clamping surface includes a chamfered edge on the outer periphery thereof.

28. The method of constructing a filter as recited in claim 25, wherein the clamping assembly comprises a first blade and a second blade.

29. The method of constructing a filter as recited in claim 28, wherein at least one of the first blade and the second blade includes a chamfered end.

30. The method of constructing a filter as recited in claim 22, wherein bonding together at least a portion of the overlapped first edges of the first section and second section comprises contacting at least a portion of the overlapped first edges with a bonding agent so as to form a bond between the first edges.

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31. The method of constructing a filter as recited in claim 22, wherein bonding together at least a portion of the overlapped first edges of the first section and second section comprises contacting at least a portion of the overlapped first edges with sufficient heat so as to form a bond between the first edges.

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32. A filter configured to be used in connection with an embolic protection device, the filter comprising a filter material formed into a sack-like shape being enclosed at a distal end and having an opening at the proximal end thereof, the sack-like shape having at least one seam formed from the proximal end to the distal end.

33. The filter as recited in claim 32, wherein the sack-like shape is a substantially conical shape.

34. The filter as recited in claim 32, wherein the filter material has a thickness of about 5μm to about 25μm.

35. The filter as recited in claim 32, wherein the filter material has a thickness of about 5μm to about 15μm.

36. The filter as recited in claim 32, wherein the filter material has a thickness of about 5μm to about 8μm.

37. The filter as recited in claim 32, wherein the filter material comprises a first edge and a second edge that are bonded together to form the at least one seam.

38. The filter as recited in claim 37, wherein the first edge and the second edge are bonded by a solvent process.

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39. The filter as recited in claim 37, wherein the first edge and the second edge are bonded by an adhesive.

40. The filter as recited in claim 37, wherein the first edge and the second edge are bonded by a heating process.

41. The filter as recited in claim 32, wherein the filter material comprises a first section and a second section, each of the first section and the second section having a tapered end, wherein at least a portion of the tapered end of the first section and the second section are bonded together to form the at least one seam.

42. The filter as recited in claim 32, wherein the filter material is a material selected from the group consisting of low-density polyethylene, polyethylene terphthalate, polytetrafluoroethylene, fluorinated ethylene propylene, polyethylene, polyurethane, polycarbonate, polyvinylchloride, or combinations thereof.

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43. A filter configured to be used in connection with an embolic protection device, the filter comprising:

a first section having a generally flat configuration and having a peripheral edge;

a second section, having a substantially similar configuration to the first section, bonded to the first section in close proximity to a peripheral edge of the first section, the combination of the first section and the second section forming a generally conical-shape being enclosed at a distal end and having an opening at the proximal end thereof, the conical-shape having at least one seam formed from the proximal end to the distal end.

44. The filter as recited in claim 43, wherein the first section and the second section each have a thickness of about 5μm to about 25μm.

45. The filter as recited in claim 43, wherein the filter material has a thickness of about 5μm to about 15μm.

46. The filter as recited in claim 43, wherein the filter material has a thickness of about 5μm to about 8μm.

47. The filter as recited in claim 43, wherein the filter material is a polymer material.

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